

NATO and Low-Yield Battlefield Nuclear Weapons

A Monograph

by

MAJ Louis J. Crist
US Army



School of Advanced Military Studies
US Army Command and General Staff College
Fort Leavenworth, KS

2021

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REPORT DOCUMENTATION PAGE*Form Approved*
OMB No. 0704-0188

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1. REPORT DATE (DD-MM-YYYY) 28 05 2021		2. REPORT TYPE MASTER'S THESIS		3. DATES COVERED (From - To) JUNE 20-MAY 21	
4. TITLE AND SUBTITLE NATO and Low-Yield Battlefield Nuclear Weapons				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Major Louis J. Crist				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301				8. PERFORMING ORG REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) ADVANCED MILITARY STUDIES PROGRAM				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution is Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT The resurgence of Russia as a threat and their rhetorical willingness to use nuclear weapons below the threshold of Massive Retaliation has challenged the North Atlantic Treaty Organizations (NATO) nuclear policy and the alliances assumptions concerning future conflict. Accordingly, this monograph aims to answer the question of how well prepared NATO ground force are to fight an adversary employing low-yield battlefield nuclear weapons (LYBNW). Historical analysis shows that NATO has always been a nuclear alliance and maintained a robust LYBNW capability throughout the Cold War. However, since then, the alliance has drastically reduced their nuclear arsenal and removed nuclear weapons from their warfighting lexicon. Today, NATO ground forces are not prepared to fight an adversary employing LYBNW. The alliance views nuclear weapons as a tool for deterrence, not warfighting. NATO has no policy or doctrine for the use of LYBNW. Furthermore, the alliance does not train to operate on a nuclear battlefield and does not integrate nuclear weapons into exercises with ground forces. To make matters worse, the alliance is twice the size it was during the Cold War and views on nuclear weapons have changed which will make a shift in policy difficult. The remedy to NATO ground force preparedness is for the US Army to reevaluate the role of LYBNW on the battlefield and assume its historic leadership role in the alliance.					
15. SUBJECT TERMS Low-Yield Battlefield Nuclear Weapons (LYBNW), NATO, Doctrine, Cold War, Preparedness					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Louis J. Crist
(U)	(U)	(U)	(U)	42	19b. PHONE NUMBER (include area code) 609-675-1747

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

Abstract

NATO and Low-yield Battlefield Nuclear Weapons, by MAJ Louis J. Crist, 48 pages.

The resurgence of Russia as a threat and their rhetorical willingness to use nuclear weapons below the threshold of Massive Retaliation has challenged the North Atlantic Treaty Organizations (NATO) nuclear policy and the alliances assumptions concerning future conflict. Accordingly, this monograph aims to answer the question of how well prepared NATO ground force are to fight an adversary employing low-yield battlefield nuclear weapons (LYBNW). Historical analysis shows that NATO has always been a nuclear alliance and maintained a robust LYBNW capability throughout the Cold War. However, since then, the alliance has drastically reduced their nuclear arsenal and removed nuclear weapons from their warfighting lexicon. Today, NATO ground forces are not prepared to fight an adversary employing LYBNW. The alliance views nuclear weapons as a tool for deterrence, not warfighting. NATO has no policy or doctrine for the use of LYBNW. Furthermore, the alliance does not train to operate on a nuclear battlefield and does not integrate nuclear weapons into exercises with ground forces. To make matters worse, the alliance is twice the size it was during the Cold War and views on nuclear weapons have changed which will make a shift in policy difficult. The remedy to NATO ground force preparedness is for the US Army to reevaluate the role of LYBNW on the battlefield and assume its historic leadership role in the alliance.

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Abbreviations

AJP	Allied Joint Publications
CBRN	Chemical, Biological, Radiological, and Nuclear
FM	Field Manual
GPG	General Political Guidelines for the Employment of Nuclear Weapons
INF	Intermediate-Range Nuclear Forces Treaty
LYBNW	Low-yield Battlefield Nuclear Weapons
MAD	Mutually Assured Destruction
NAC	North Atlantic Council
NATO	North Atlantic Treaty Organization
NPG	Nuclear Planning Group
NPT	United Nations Nuclear Non-Proliferation Treaty
NSC 68	US National Security Council's policy paper, published in 1950
PPG	Provisional Political Guidelines for the Initial Defensive Tactical Use of Nuclear Weapons by NATO
UK	United Kingdom

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Definitions

NATO Ground Forces: For this paper large NATO exercises will serve as the abstract embodiment of all the NATO ground forces. The alliance is made up of thirty-member states and analysis of them all is beyond the scope of this work. Conversely, a United States centric approach is too narrow of a frame to describe all of NATO. Thus, collective training within the alliance will serve as the personification of NATO ground forces.

Low-Yield Battlefield Nuclear Weapons: A low yield battlefield nuclear weapon (LYBNW) is a nuclear weapon with a yield of less than 15 kilotons and used to create tactical or operational effects against military targets, primarily ground forces, within a specified theater. The use of such weapons also has strategic implications. A LYBNW may be delivered using cruise missiles, artillery shells, ballistic missiles, gravity bombs, or any other appropriate method. Past examples in the US nuclear arsenal include the Little Boy gravity bomb, Davy Crockett artillery shell, and Genie rocket. Currently, the US nuclear arsenal includes variable yield weapons such as the B-61 gravity bomb and the air launched cruise missile. The W 76-2 submarine launched intercontinental ballistic missile is the newest low-yield option in the US nuclear arsenal.¹

Preparedness: For this paper, the combination of four elements constitutes preparedness: policy, doctrine, capabilities, and training. Lord Hastings Lionel Ismay, the first NATO Secretary General, maintained the same view, "The combat efficiency of the armed forces of a coalition largely depends on the extent to which the various national components are trained on uniform lines and use the same systems of staff work and the same operational procedures and techniques."²

¹ Adam Lowther, "Nuclear Monograph Syndicate Meeting" (SAMS, Fort Leavenworth, December 19, 2020).

² Hastings Lionel Ismay, *NATO The First Five Years 1949-1954* (NATO, 1954), 105.

Introduction

Yes, of course they would be used. In any combat where these things can be used on strictly military targets and for strictly military purposes, I see no reason why they shouldn't be used just exactly as you would use a bullet or anything else.

— President Dwight D. Eisenhower

During the Cold War, NATO maintained an aggressive nuclear policy that adapted to the evolving threat environment.³ The initial view that nuclear weapons were simply a new battlefield development quickly morphed into the policy of Massive Retaliation with the Soviet acquisition of nuclear weapons.⁴ However, it became increasingly apparent that this all or nothing approach left open a grey space that the Soviets could exploit. In reaction, the alliance adopted a new policy of Differentiated Responses that eventually developed into the more familiar policy of Flexible Response.⁵ NATO's success at maintaining relevant policy was a direct result of US leadership and the overwhelming Soviet threat.⁶ The result was operational readiness to use low-yield battlefield nuclear weapons (LYBNW).

To that end, the alliance maintained a plethora of tactical nuclear capabilities and associated doctrine, which enabled NATO to incorporate LYBNW into large scale exercises.⁷ The US Army led the way in developing many doctrinal publications which NATO adopted. The alliance ground forces either deployed or received support from numerous nuclear delivery systems. The high degree of nuclear integration with ground forces was astonishing and

³ NATO, "NATO Strategy Documents," NATO, last modified 1999, <https://www.nato.int/archives/strategy.htm>.

⁴ John Ikenberry, *After Victory: Institutions, Strategic Restraint, and the Rebuilding of Order after Major Wars* (Princeton, NJ: Princeton University Press, 2001), 209.

⁵ NATO, "NATO Strategy Documents."

⁶ A. Richard Bitzinger, "Assessing the Conventional Balance in Europe 1945-1975" (The RAND Corporation, 1989), 5.

⁷ G.C. Reinhardt, *Nuclear Weapons and Limited Warfare: A Sketchbook History* (The RAND Corporation, 1964), 4.

repeatedly demonstrated during large scale maneuvers.⁸ But towards the end of the Cold War, popular views on nuclear weapons began to shift, and NATO ground forces started to reduce their dependence on low-yield battlefield nuclear weapons.

After the fall of the Soviet Union, NATO and its partners declared victory and sought to take advantage of the peace dividend. The alliance no longer had an adversary or even a potential threat. NATO policy and operational readiness all began to reflect this new paradigm.⁹ Over time a massive shift occurred; nuclear weapons transitioned from a tool for warfighting to deterrence. NATO members reduced their nuclear arsenals and integration of nuclear weapons into ground force training exercises disappeared entirely.¹⁰

This monograph argues that today, NATO ground forces are not prepared to fight an adversary employing LYBNW. The initial reason is NATO has no policy for the use of LYBNW. All nuclear weapons are viewed solely in the context of deterrence, not warfighting, and the deliberate absence of policy for LYBNW serves as a prohibition against them. Consequently, NATO ground forces have no LYBNW doctrine or low-yield battlefield nuclear weapons capabilities. Unsurprisingly, the alliance does not train to fight on a nuclear battlefield. The combined lack of policy, doctrine, capabilities, and training to operate on a nuclear battlefield means the alliance is wholly unprepared to fight an adversary employing LYBNW.

The first step towards operational readiness requires the acknowledgment of the decline in NATO capability and the threat posed by Russia. NATO must forge new and relevant policy to enable the development of doctrine and only then can the introduction of new capabilities be

⁸ Paul Jussel, “Intimidating the World: The United States Atomic Army, 1956-1960” (Doctoral Thesis, Ohio State University, OH, 2004), 85.

⁹ Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd ed (Chicago, IL: University of Chicago Press, 1996), 10.

¹⁰ Robertus Remkes, “The Security of NATO Nuclear Weapons Issues and Implications” (Nuclear Threat Initiative, November 2011), 66, accessed September 12, 2020, https://media.nti.org/pdfs/NTI_Framework_Chpt3.pdf.

integrated into large scale exercises. The obstacles are great. The alliance membership has doubled in size since the Cold War, and consensus-building is difficult. Diverse interests and relationships hinder universal agreement on most issues. Popular views on nuclear weapons have also changed, and most states in Europe are committed to a nuclear-free world. Moreover, the stigma that has grown around nuclear weapons makes them an undesirable issue for politicians.

The only hope for NATO ground forces to prepare for a nuclear battlefield is US leadership. The US Army must set the example and reevaluate the role of low-yield battlefield nuclear weapons, develop doctrine, incorporate capabilities, and integrate them into exercises to serve as a role model. Even if the US Army transforms into an exemplar, it cannot force NATO to adopt LYBNW. However, without US leadership, there is little chance the alliance will integrate low-yield battlefield nuclear weapons into training exercises and be truly prepared to fight an adversary employing them.

Methodology

This monograph seeks to answer the question: how well prepared are NATO ground forces to fight an adversary employing low-yield battlefield nuclear weapons? The logic of the answer to this question rests on the foundational definitions for preparedness and NATO ground forces. The next step is to establish whether NATO ground forces were ever prepared and compare current readiness to this historical baseline. To begin, Lord Ismay, the first NATO Secretary General, provides an insightful description of what is necessary for NATO preparedness: “The combat efficiency of the armed forces of a coalition largely depends on the extent to which the various national components are trained on uniform lines and use the same systems of staff work and the same operational procedures and techniques.”¹¹ His logic is the foundation for the definition of preparedness and who constitutes NATO ground forces.

¹¹ Ismay, *NATO The First Five Years 1949-1954*, 105.

Preparedness begins with policy, and this monograph will leverage questions from Richard Kugler's policy analysis to explore the evolution of NATO policy concerning LYBNW.¹² Policy analysis is useful because a policy is far more than a simple statement of intent; it is a prediction of the future. A policy declaration implies a causal connection between ends and means, especially for nuclear weapons.¹³ As Carl Von Clausewitz would remind us, "If war is part of policy, policy will determine its character."¹⁴ Moreover, NATO is a political organization, and policy for the use of LYBNWs is the most foundational element of preparedness.

The second element of preparedness is doctrine. Fredrick the Great once said while speaking of war, "A great deal of knowledge, study, and meditation is necessary to conduct it well."¹⁵ Doctrine represents the collective wisdom and experience of the alliance. It advocates fundamental principles, tactics, techniques, procedures, and serves as a common language. Without a doctrine for the use of LYBNW, the alliance can hardly be prepared to fight an adversary employing low-yield battlefield nuclear weapons.

The third element of preparedness is actual LYBNW capabilities. A policy and doctrine for the use of low-yield battlefield nuclear weapons are meaningless without the ability to use them. This monograph's foundational assumption is that it is not enough to simply react to a nuclear strike. To be truly prepared to fight, NATO ground forces need to integrate LYBNW capabilities.

The final element of preparedness is training. A policy for using LYBNW, doctrine for their employment, and the actual capabilities themselves are of little value unless they are

¹² Richard L. Kugler, *Policy Analysis in National Security Affairs: New Methods for a New Era* (Washington, DC: National Defense University Press, 2006), 13.

¹³ J. Peter Scoblic and Philip Tetlock, "A Better Crystal Ball: The Right Way to Think About the Future," *Foreign Affairs*, 99, no. 6 (November/December 2020): October 22, 2020, 1.

¹⁴ Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret, (Princeton: Princeton University Press, 1976), 606.

¹⁵ John Spencer, "What Is Army Doctrine?," Modern War Institute, March 22, 2016, accessed September 25, 2020, <https://mwi.usma.edu/what-is-army-doctrine/>.

exercised. As Lord Ismay pointed out, collective training is the measure of combat efficiency for the NATO alliance. This idea is also helpful in defining who represents NATO ground forces.

NATO is an alliance and does not possess an army or ground forces outside of what member states contribute. Any discussion on NATO ground forces is context-based and subject to innumerable variation. An evaluation of all thirty member states or even several is beyond the scope of this analysis. Conversely, using the US Army as the sole representative of NATO ground forces is insufficient. Thus, for this paper and following Lord Ismay's lead, large NATO exercises will serve as the abstract embodiment of NATO ground forces.

The above logic provides a framework, and this monograph will use the following five questions to establish a baseline for NATO ground force preparedness.

1. Did NATO have a policy for the use of LYBNW during the Cold War?
2. Did NATO have a doctrine for the use of LYBNW during the Cold War?
3. Did NATO have LYBNW capabilities during the Cold War?
4. Did NATO integrate LYBNW capabilities into exercises during the Cold War?
5. Was NATO prepared to fight an adversary employing LYBNW during the Cold War?

The above questions and the associated analysis will constitute the first section of this monograph. The historical Cold War analysis is not all-inclusive and will only highlight salient events. Similarly, the reader will find significant leaps in time. The second section is structured like the first, delving into current NATO policy, doctrine, capabilities, and exercises to compare it against the Cold War standard. In addition, the United Kingdom (UK) will be used as an example to emphasize the current mindset concerning nuclear weapons in NATO, particularly, the level of atrophy regarding low-yield battlefield nuclear weapons by the only other nation that extends nuclear deterrence to the alliance. The final section provides recommendations for NATO ground forces to improve their ability to operate in a nuclear battlefield environment. Ultimately, the recommendations are for the US Army to shape policy from which all else is derived.

One acknowledgment is important to address at the outset. The classified nature of the topic is an obstacle. Many primary source documents concerning NATO are classified. Accordingly, emphasis is placed on historical analysis and current policy instead to maintain a low classification for this this paper.

In summary, the methodology of this monograph is founded on the definition of preparedness and who constitutes NATO ground forces. The five questions derived from this framework will be applied to NATO during the Cold War to establish whether NATO ground forces were prepared to fight an adversary employing LYBNW. The analysis will serve as the baseline for the evaluation of current NATO preparedness. The results of this comparison will inform recommendations to shape the policy debate and improve NATO ground force preparedness.

Section I – Cold War Preparedness

NATO Cold War Nuclear Policy

During the Cold War, NATO maintained both a policy and a strategy for the use of nuclear weapons despite the difficulty of gaining consensus.¹⁶ The two fundamental reasons for the alliance's success in forging policy were US leadership and the threat posed by the Soviet Union.¹⁷ NATO faced a monolithic threat that it could not ignore, and US leadership was required to forge policy. The historical record shows that even with both motivators acting upon the alliance, policymaking was contentious. The evolution of NATO nuclear policy from Massive Retaliation through Flexible Response was a difficult process for many reasons.¹⁸ NATO was inherently reactive and founding members had divergent visions for what it should be. Member states also had the power to moderate United States goals.¹⁹ Therefore, forging a policy for the use of nuclear weapons was slow and evolving. The policymaking process was complicated, and parties were often unsatisfied with the result. However, US leadership and the Soviet threat ensured the successful development and evolution of nuclear weapons policy.²⁰

The first thing to understand about NATO is that its reactive nature requires stimuli. The United States founded NATO in 1949 as part of a broader effort to unify Europe. However, deteriorating relations with the Soviet Union accelerated the alliance's formation.²¹ NATO formed as a reaction, and all subsequent policy changes were largely a reaction to the Soviets. US

¹⁶ Alan Lamborn, "Theory and the Politics in World Politics," *International Studies Quarterly* 2, no. 41 (1997): 196.

¹⁷ Bitzinger, "Assessing the Conventional Balance in Europe 1945-1975," 5.

¹⁸ NATO, "NATO Strategy Documents."

¹⁹ Ikenberry, *After Victory*, 209.

²⁰ Beatrice Heuser, "The Development of NATO's Nuclear Strategy," *Contemporary European History* 4, no. 1 (1995): 43.

²¹ *Ibid.*, 209.

leadership also played a key role, but the critical point is that the alliance required strong inducement to change. Forging Cold War nuclear policy required both a negative threat and positive leadership to achieve consensus.

Another key point is the vision for NATO differed among the founding members. Following World War Two, primarily the British but also the French were very keen to leverage US power and ensure continued US involvement on the continent.²² The United States begrudgingly accepted a leading role because it saw the NATO alliance as the first step towards a European "third force" to provide for its own security.²³ The US plan was to rebuild Europe through the Marshall Plan, unify it using NATO, and return to a more isolationist stance. In essence, the United States saw NATO as a way out, but most European member states held the opposite view. They saw the alliance as a way to save on defense spending and moderate US power. Lord Ismay probably said it best, that the purpose of NATO was "to keep the Russians out, the Americans in, and the Germans down."²⁴

A significant point for today is that NATO had a named and monolithic threat during the Cold War. Much of NATO's early nuclear policy and planning centered around the idea of Soviet conventional superiority.²⁵ Many thought the Soviets had a four to one overmatch in conventional forces throughout the early 1950s. The threat was real, ever present, and provided motivation, cohesion, and a sense of purpose to NATO policymaking. In short, the threat posed by the Soviets was the primary impetus for policy development within the alliance.

The fear of a conventional attack led NATO to adopt the Defense Committee Strategic Concept otherwise known as DC 6/1, on 1 December 1949. In essence, the NATO strategy was to

²² Ikenberry, *After Victory*, 206.

²³ *Ibid.*, 198.

²⁴ Small Wars Journal, "Lord Ismay, Restated," para. 1, accessed September 25, 2020, <https://smallwarsjournal.com/blog/lord-ismay-restated>.

²⁵ Bitzinger, "Assessing the Conventional Balance in Europe 1945-1975", 5.

use all means available, including US nuclear weapons, to counter any Soviet incursion.²⁶ The United States and NATO were reasonably comfortable with this strategy as the Soviets did not possess nuclear weapons. Unfortunately, in August of that same year, the Soviets tested their first atomic weapon, upsetting the short-lived sense of security.²⁷

The United States, United Kingdom, and NATO responded with conventional and nuclear force build-up. The US National Security Council's policy paper or NSC 68, published in 1950, was this strategy's foundation. The policy team, led by Paul Nitze, established much of the Cold War policy and strategy. He argued the only way to deter Soviet aggression was to achieve a semblance of conventional and nuclear parity.²⁸ The UK countered with its Global Strategy Paper in 1952, which emphasized nuclear deterrence.²⁹ The UK felt a conventional build-up was too expensive. In the end the United States, and NATO increased both its conventional and nuclear capabilities.

The United States has always played a leading role in NATO. To paraphrase George Orwell, all NATO member states are equal, but some are more equal than others.³⁰ US leadership was a driving force in the development of nuclear policy. The dynamic should come as no surprise because the United States provided the bulk of the conventional forces early in the Cold War, and the majority of nuclear weapons throughout. Yet, it could not dictate or unilaterally create NATO policy and had to lobby within the alliance to achieve its objectives.

²⁶ NATO, "North Atlantic Defense Committee 6/1: The Strategic Concept for The Defence of The North Atlantic Area" (NATO Archives Online, 1949), 6.

²⁷ Comprehensive Nuclear-Test-Ban Treaty Organization, "29 August 1949 - First Soviet Nuclear Test: CTBTO Preparatory Commission," para. 1, accessed September 4, 2020, <https://www.ctbto.org/specials/testing-times/29-august-1949-first-soviet-nuclear-test>.

²⁸ Office of the Historian, US Department of State, "Milestones: 1945–1952," para. 1, accessed September 4, 2020, <https://history.state.gov/milestones/1945-1952/NSC68>.

²⁹ Andrew Johnston, "Mr. Slessor Goes to Washington: The Influence of the British Global Strategy Paper on the Eisenhower New Look," *Oxford University Press* 22, no. 3 (1998): 361.

³⁰ George Orwell, *Animal Farm: A Fairy Story* (New York, NY: Signet Classic, 1996), 112.

Member states routinely moderated US policy. For example, the UK was persistent in their belief that nuclear weapons were the answer to both defense and deterrence. In 1954, NATO published the North Atlantic Military Committee Decision otherwise known as MC 48, which outlined the familiar concept of mutually assured destruction (MAD) using the idea of massive Retaliation.³¹ The UK's influence can be clearly seen and shows the power member states wielded. Certainly, UK influence was not the only reason for the shift in strategy. The US national debt and the Korean War had a significant role in promoting President Dwight D. Eisenhower's New Look,³² yet the historical part that NATO allies played in shaping US policy is worth mentioning to shed light on the dynamics of contemporary NATO interactions.

One of the most significant outgrowths of the "New Look" was the willingness to use low yield nuclear weapons. Eisenhower stated at a news conference on 16 March 1954 that, "Yes, of course they would be used. In any combat where these things can be used on strictly military targets and for strictly military purposes, I see no reason why they shouldn't be used just exactly as you would use a bullet or anything else."³³ This attitude on nuclear weapons coincided with a flurry of technological developments of LYBNW.

The introduction of numerous low-yield battlefield nuclear weapons and the appreciation of an evolving threat environment led NATO to adopt MC 14/2 in March 1958.³⁴ The policy was a reaction to what the alliance saw as an increase in possible threat scenarios and sought more options than Massive Retaliation provided. MC 14/2 called for differentiated responses and laid the groundwork for what would become flexible response.³⁵ The change in policy was in part a

³¹ Beatrice Heuser, "The Development of NATO's Nuclear Strategy," 43.

³² Johnston, "Slessor Goes to Washington," 397.

³³ National Park Service, "Quotes of President Dwight D. Eisenhower," para. 1, accessed September 4, 2020, <https://www.nps.gov/features/eise/jrranger/quotes2.htm>.

³⁴ NATO, "North Atlantic Defense Committee 14/2: The Strategic Concept for The Defence of The North Atlantic Area" (NATO Archives Online, 1958), 277.

³⁵ Heuser, "NATO's Nuclear Strategy," 45.

recognition that the strategy of massive retaliation was becoming theoretically inadequate. The destructive power of nuclear weapons and the increasing size of nuclear arsenals made the strategy less desirable. The new policy did not remove massive retaliation as a possibility but did begin to account for more limited scenarios.³⁶ In short, the all or nothing strategy of massive retaliation was called into question as NATO recognized that grey area existed below the threshold of all out nuclear war.

There were varying opinions within NATO. Most member states, especially the French, disliked the concept of a differentiated response or flexible escalation.³⁷ After the massive destruction wrought by both world wars, most member states were vehemently opposed to planning for another conventional war in Europe. Many advocated for a near-total reliance on massive retaliation because they believed it delivered the same deterrence effect for a lower cost. Evolving US doctrine, which already advocated significant conventional involvement with the addition of low-yield battlefield nuclear weapons as the cherry on top, was met with disdain.³⁸ The notion of using LYBNW to manage escalation increased the risk of all-out nuclear war in the minds of many European leaders. Helmut Schmidt, the West German Finance Minister, captured the feeling, "Many have yet to learn that in the event of a collision in Europe our peoples would be destroyed by tactical nuclear weapons every bit as efficiently as by strategic bombs, and that, furthermore, the fact of their existence scarcely reduces the risk of the outbreak of war at all."³⁹ The policy debate slowed significantly as the United States became more involved in Vietnam.

³⁶ NATO, "14/2," 8.

³⁷ *Ibid.*, 46.

³⁸ Robert Lieber, "The French Nuclear Force: A Strategic and Political Evaluation," *International Affairs* 42, no. 3 (1966): 421.

³⁹ Charles Davidson, "Tactical Nuclear Defense - The West German View" (US Army War College, 1974), 47.

The controversy continued after the adoption of MC 14/3 in January 1967, which fully introduced the idea of flexible response or the flexible use of nuclear weapons.⁴⁰ A key change was the capability to use nuclear weapons in a first strike capacity along with the ability to match any level of Soviet aggression with all means available, to include nuclear weapons. The critical point to highlight about the strategy is, when or how atomic weapons ought to be used, was not specified. The NATO Military Committee relinquished control of nuclear planning to the North Atlantic Council (NAC). The NAC established the nuclear planning group (NPG) to sort out the details which were published in the Provisional Political Guidelines for the Initial Defensive Tactical Use of Nuclear Weapons by NATO (PPG), in November 1969. In October 1986, the General Political Guidelines for the Employment of Nuclear Weapons in the Defense of NATO (GPG) superseded the PPG.⁴¹ In short, the military relinquished control of nuclear weapons.

During the late 1960s, nuclear weapons began to transition from a military tool to a political tool. Moreover, as the Cold War dragged on and nuclear weapons policy became more controversial, NATO shifted responsibility to the bureaucracy. The United States was very concerned that nuclear policy was becoming lost in the establishment and founded the High Level Group in 1977 to advocate for US interests.⁴² The new advisory body accomplished its purpose but did not stop the migration of policy development to the political bureaucracy.

The main focus of both the PPG and the GPG was to use nuclear weapons offensively, utilizing a first-strike capability if necessary, to achieve an armistice. The point was not to fight a war to ultimate victory with nuclear weapons, but to end the war quickly.⁴³ The change in policy

⁴⁰ NATO, "North Atlantic Defense Committee 14/3: The Strategic Concept for The Defence of The North Atlantic Area" (NATO Archives Online, 1967), 345.

⁴¹ Heuser, "NATO's Nuclear Strategy," 47.

⁴² Steve Andreasen et al., *Building a Safe, Secure, and Credible NATO Nuclear Posture* (Nuclear Threat Initiative, 2018), 43.

⁴³ Ibid.

stemmed from a shift in thinking in the late 1960s that the only way Russia would go to war would be by accident or through miscalculation.⁴⁴ Having a flexible nuclear arsenal was important for showing the Soviets they had miscalculated without triggering an all-out nuclear war. The nuance of the change may seem slight, but it had profound effects on the military. In short, nuclear weapons became a tool for political de-escalation, not warfighting.

NATO policy development was more complicated than it may seem. Many historians neatly pack Cold War nuclear policy into one of two bins: massive retaliation or flexible response. While these two bins help simplify the evolution in thought within NATO, they downplay the tension, friction, and slow process that produced them. A closer look at the dynamics within NATO during the Cold War reveals that consensus seldom existed. NATO nuclear policy was a series of compromises and reactions to the changing threat environment. While the United States was never able to fully control NATO strategy or nuclear policy, it did assert the most influence. The British sought to influence them from within and cultivated a 'special relationship.' The French failed to get their way on several issues, felt ostracized, and removed their armed forces from NATO in 1966.⁴⁵ The point is, the lack of consensus on NATO nuclear strategy reflected lack of consensus within NATO as a whole.

The final point is that decision making and policy development within NATO, is slow. The United States adopted a new strategy with NSC 68 roughly one year after the first Soviet atomic test. It took NATO three years to moderate and integrate these ideas into MC 14/1. Again, in 1962 after the Cuban missile crisis the United States sought to increase its options for similar eventualities. It took NATO another five years to adopt the policy of Flexible Response. Subsequent changes took much longer, and today NATO publishes its strategic concept documents on a ten-year cycle.

⁴⁴ Ibid., 46.

⁴⁵ Erin Blakemore, "When France Pulled the Plug on a Crucial Part of NATO," History.com, para. 10, accessed September 12, 2020, <https://www.history.com/news/france-nato-withdrawal-charles-de-gaulle>.

Even though NATO nuclear policy was contentious, it did exist and evolved to meet the needs of the alliance. The United States and the Soviet Union played indispensable roles in its development. The former provided the leading voice that shaped the alliance. The latter provided the lubrication and glue that unified the alliance. It is hard to imagine NATO working through the diversity of perspectives and the slow bureaucratic processes without either driver. Despite the friction within the alliance, NATO policy was sufficient to develop doctrine for LYBNW.

NATO Cold War Nuclear Doctrine

NATO dependence on the United States was evident everywhere, but particularly so in the realm of doctrine. NATO did not have its own nuclear doctrine during the Cold War but was instead entirely dependent on the United States. Throughout the Cold War and especially during the early 1960s, the US Army fully embraced the use of LYBNW in doctrine. The US Army went as far as a complete reorganization and developed the Pentomic Division. NATO benefited from United States tinkering and a wealth of LYBNW doctrine.

The closest that NATO as an alliance progressed towards nuclear doctrine during the Cold War was the publication of standardization agreements or STANAGS, which "establish procedures and guidelines for the employment and coordination of all arms in land combat."⁴⁶ These documents helped to standardize reporting procedures, formats, and covered a myriad of topics. STANAGS never represented doctrine and certainly not for the use of LYBNW. While some did cover nuclear hardening, survivability, and reporting procedures they were simply guidelines.⁴⁷

In the early 1950s the US Army was grappling with the New Look budget cuts and the ascendancy of the Air Force. Massive Retaliation was the doctrine of the day and Air Force

⁴⁶ US Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Printing Office, 1976), 13-5.

⁴⁷ NATO Standardization Office, "List of Current NATO Standards," para. 1, accessed September 23, 2020, <https://nso.nato.int/nso/nsdd/listpromulg.html>.

Strategic Air Command assumed almost complete responsibility for defense. The Air Force budget increased to more than double that of Army and the necessity of even having an Army was called into question.⁴⁸ The Army also faced the question of what war would look like with nuclear weapons.

Uncertainty produced the pentomic era. Essentially, the US Army had to figure out how it would train and fight on a nuclear battlefield. The pentomic period is fascinating because of the context that produced it, the decisions that leaders made, and the reorganization's ultimate failure provide an important historical context to the larger debate on LYBNW today. However, the key point for this discussion is that the pentomic era spawned a robust assortment of low-yield battlefield nuclear weapons doctrine.

As early as 1949, the US Army was working on draft doctrine for the "tactical use of atomic weapons" and published Field Manual (FM) 100-31, *Tactical Use of Atomic Weapons* in 1951.⁴⁹ Nuclear weapons were fully incorporated into FM 100-5, *Operations* in 1954.⁵⁰ Other notable examples include: FM 101-31-1, *Nuclear Weapons Employment Doctrine and Procedures*, FM 100-5-1, *Conventional Nuclear Operations*, and FM 100-30, *Tactical Nuclear Operations* among others. The point is the US Army fully embraced the use of LYBNW in doctrine and by extension so did NATO.

NATO Cold War Nuclear Capabilities

NATO maintained a massive number of nuclear weapons in Europe throughout the Cold War. The United States deployed twenty-four different systems, and the total NATO arsenal peaked in 1971 at 7,304. They supplied 6,042 of the total, and 4,998 of these were considered

⁴⁸ A.J. Bacevich, *The Pentomic Era: The US Army between Korea and Vietnam* (Washington, DC: National Defense University Press, 1986), 15.

⁴⁹ Reinhardt, *Nuclear Weapons and Limited Warfare*, 4.

⁵⁰ US Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Publishing Office, 1956), 2.

tactical. Also, twelve of the twenty-four systems the United States deployed were tactical.⁵¹ The total numbers slowly dropped to just below 6,000 before the signing of the Intermediate-Range Nuclear Forces (INF) Treaty in 1987.⁵² The UK did contribute around 140 Vulcan bombers with tactical nuclear gravity bombs for most of the Cold War.⁵³ However, these were not viewed as tactical but as nonstrategic. In other words, these were not integrated at the tactical level. Also, as noted previously, the French did not assign any forces to NATO command. Therefore, as with many things in NATO, the United States was almost entirely responsible for all LYBNW in the alliance.

One of the striking aspects of US Cold War nuclear capabilities is the low echelon at which these weapons were fielded. Divisions had organic nuclear weapons, and battalion commanders had access to this support.⁵⁴ Based on the thinking at the time, company commanders needed to have a thorough understanding of how to employ LYBNW.⁵⁵ For example, in 1958, a division would have an organic eight-inch atomic artillery battery and an Honest John surface-to-surface missile battery.⁵⁶ The US Army placing nuclear weapons at such a low echelon shows an extraordinary level of integration, but the proliferation to lower echelons did not stop there.

⁵¹ Robert Norris, *United States Nuclear Weapons Deployments Abroad, 1950-1977* (Washington, DC: Carnegie Endowment for International Peace, 1999), 7-9.

⁵² Amy Woolf, “Nonstrategic Nuclear Weapons” (Congressional Research Service, May 4, 2020), 11.

⁵³ Beatrice Heuser and Kristan Stoddart, *Difficult Europeans: NATO and Tactical/Non-Strategic Nuclear Weapons, Past and Present* (Glasgow, UK: University of Glasgow, 2017), 5.

⁵⁴ Thomas M. Nichols, Douglas T. Stuart, and Jeffrey D. McCausland, eds., *Tactical Nuclear Weapons and NATO* (Carlisle, PA: US Army War College, 2012), xiv.

⁵⁵ Theodore Mataxis and Seymour Goldberg, *Nuclear Tactics, Weapons, and Firepower in the Pentomic Division, Battle Group, and Company* (Harrisburg, PA: Military Service Publishing, 1958), 7.

⁵⁶ *Ibid.*, 108.

In 1961 the US Army introduced the XM-29 to Europe, otherwise known as the Davy Crockett.⁵⁷ Essentially, the Army placed a nuclear-capable recoilless rifle on the back of a jeep. The system only had a range of 1.25 miles, and the crew had to shoot and scoot to avoid the blast.⁵⁸ The short-range of these weapons, and the mission set meant these weapons had to be incorporated at the battalion level.

US doctrine, particularly during the early 1960s, called for what amounted to an echelonment of nuclear fires. The first line was the XM-29, followed by eight inch, or 280mm nuclear artillery and surface-to-surface missiles. Beyond these, the Air Force delivered gravity bombs, and intermediate ballistic missiles would shape in the deep area.⁵⁹ It is difficult to imagine such a battlefield, yet it is clear the capabilities were present and integrated at an extremely low level.

The final point concerning low-yield battlefield nuclear weapons is that the United States maintained control of all these weapons. Even when they were assigned to an allied area of operation, the United States retained release authority.⁶⁰ Unity of control did not necessarily translate into timeliness, and based on exercises, political consultation took a minimum of three days.⁶¹ Regardless, the fact that capabilities were placed at such low levels, and coordination was practiced shows significant integration of LYBNW.

NATO Cold War Nuclear Exercises

At this point, a trend is becoming clear, NATO readiness to use LYBNW flowed directly from US readiness. As illustrated above, policy, doctrine, and capabilities depended heavily on the United States. The trend is no less apparent in training exercises. The US Army vigorously

⁵⁷ Bacevich, *The Pentomic Era*, 2.

⁵⁸ Bacevich, *The Pentomic Era*, 2.

⁵⁹ Mataxis and Goldberg, 145.

⁶⁰ Davidson, "Tactical Nuclear Defense," 48.

⁶¹ Nichols, Stuart, D. McCausland, *Tactical Nuclear Weapons*, 73.

incorporated low-yield battlefield nuclear weapons into exercise and the alliance benefited. In fact, it is doubtful NATO ground forces would have excised LYBNW at all without US leadership.

The United States had been developing doctrine and conducting small scale exercises throughout the late 1940s. However, starting in 1950 and running through 1958, the Army conducted a series of exercises named Desert Rock in the Nevada desert. These exercises allowed the Army to incorporate actual nuclear detonations into the ground maneuver plan.⁶² The Desert Rock series of exercises facilitated doctrinal improvements and provided insights on the effects of nuclear weapons.

In 1955 the Army conducted several training exercises to include: Follow Me, Blue Bolt, and Sagebrush.⁶³ Sagebrush was by far the largest and most extensive exercise since World War Two. Like the army maneuvers of 1941, the joint exercise covered over seven million acres across the Southern United States and incorporated over 140,000 troops. The primary purpose was to test the feasibility of tactical nuclear doctrine. The exercise would also provide insights and implications for the use of nuclear weapons on the battlefield. The 280mm atomic cannon was a prominent addition to the training event.⁶⁴ All of these exercises facilitated the US Army's ongoing development of the pentomic division.⁶⁵

In Europe, hundreds of NATO exercises were taking place each year, however the first exercise to integrate nuclear weapons and maneuver was Monto Carlo in 1953. Forces from the United States, Belgium, and France participated in the exercise along the Middle Rhine's east

⁶² US Department of the Army, "Report of Test Infantry Troop Test Exercise Desert Rock VII & VIII" (Camp Irwin, CA, January 22, 1958), 1.

⁶³ Jussel, "Intimidating the World," 85.

⁶⁴ US Department of the Army, *Big Picture: Operation Sagebrush*, 2010, accessed September 12, 2020, <https://www.youtube.com/watch?v=Ih3Lqn1RrsA>.

⁶⁵ Jussel, "Intimidating the World," 109.

bank in Germany.⁶⁶ A survey of NATO archives produced thousands of exercise records, and it is redundant to explore them all. However, 1959 provides a good sample; the United States participated in over 120 exercises. More importantly, one of the year's critical training objectives was to train "...atomic tactics and capabilities of army formations."⁶⁷ In addition to incorporating capabilities at low levels and exercising these as an alliance, the significant implication is that NATO was training both offensive and defensive capabilities. More precisely, the alliance was using LYBNW to meet military objectives.

The overarching exercise for 1959 was Top Weight, which included hundreds of thousands of troops, thousands of aircraft, and hundreds of ships. The exercise specifically incorporated the movement of three US ground atomic battalions to support the Northern Army Group in Germany.⁶⁸ The United States was the only NATO member to have nuclear weapons in Europe at the time, and the battalions were likely armed with eight-inch atomic howitzers and Honest John rockets.⁶⁹ Based on 1959 alone, it is clear the United States and its allies coordinated for the use of low-yield battlefield nuclear weapons in NATO exercises.

In conclusion, even though consensus building was contentious the alliance managed to adapt to the changing threat environment. The evolution of policy from massive retaliation through flexible response represents a great achievement. The threat posed by the Soviet Union and US leadership were crucial to forging an adaptive policy. NATO developed a policy for the use of LYBNW, created doctrine, and incorporated nuclear capabilities into training exercises. In short, NATO ground forces were well prepared to fight an adversary employing LYBNW. Nearly the complete opposite is true today.

⁶⁶ Ismay, *NATO First Five Years*, 105.

⁶⁷ NATO, "A Report by The Military Committee to the North Atlantic Council on NATO Exercises 1959" (Standing Group Military Committee, 1960), 6.

⁶⁸ NATO, "Exercise Top Weight and Associated Exercises" (NATO Archives Online, 1959), 6.

⁶⁹ Norris, *United States Nuclear Weapons Deployments*, 5.

Section II – Current NATO Preparedness

Current NATO Policy

NATO's concept of future conflict defines the debate over nuclear weapons.⁷⁰ Moreover, a policy is far more than a simple statement of intent; it is a prediction of the future.⁷¹ The current vision is that large scale war between two nuclear powers can only occur by accident. The destructive power of atomic weapons will invariably lead to the destruction of the planet. Thus, deterrence is the focus for nuclear weapons, with an ancillary role of de-escalation. In this future, ground forces having LYBNW is not only pointless but dangerous. However, the Russians put forth an alternate future that includes conflict with low-yield battlefield nuclear weapons. In this reality, NATO ground forces will need to integrate some nuclear capabilities.

NATO has no policy for the use of LYBNW. The statement may seem harsh but is no less accurate. The deliberate lack of policy on LYBNW is a clear policy statement that assumes nuclear weapons are for ending wars, not fighting them. NATO is a defensive alliance and retains nuclear weapons as a final resort, as they are only to be used in extreme circumstances. In essence, nuclear weapons are a tool for deterrence and not one to meet military objectives. There is no such thing as tactical, non-strategic or LYBNW in the NATO policy lexicon. The downstream effects of this on nuclear strategy, operational readiness, and the integration of LYBNW by ground forces are profound.

⁷⁰ Rebecca Bryant and Daniel Knight, *The Anthropology of the Future* (Cambridge, UK: Cambridge University Press, 2019), 14.

⁷¹ Scoblic and Tetlock, "A Better Crystal Ball," 1.

The current NATO nuclear policy is based on the most recent Strategic Concept published in 2010. The policy states two key things about nuclear weapons. First, NATO is committed to eliminating nuclear weapons entirely and supports the United Nations Nuclear Non-Proliferation Treaty (NPT). Second, if nuclear weapons exist in the world, the alliance will maintain some level of capability.⁷² The implication of this should be clear; NATO desires to maintain a nuclear capability to the least extent possible to ensure stability.

All NATO member states are signatories to the NPT. The alliance is committed to the three tenets of the agreement: non-proliferation, disarmament, and the peaceful use of nuclear energy.⁷³ The NPT, INF, and other initiatives have drastically reduced nuclear stockpiles since the Cold War. The Strategic Concept affirms this reduction and states the alliance will seek further reductions in the future.⁷⁴

The most important statement in the strategic concept is "the alliance does not consider any country to be its adversary."⁷⁵ The significance of this statement cannot be overstated. When the Cold War ended, a tectonic shift occurred. NATO lost its reason for existence, or at least the impetus for why it was created. NATO no longer had an adversary and could hardly envision a potential threat in its future. NATO lost the primary driver of change and the great unifier of the alliance. Much has been written on the importance of US leadership in the alliance, but this pales compared to the contribution of the Soviets.

The next major policy statement is the *Deterrence and Defense Posture Review*, published in 2012. The document simply reiterated much of the 2010 Strategic Concept.

⁷² NATO, "2010 Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organization" (Public Diplomacy Division, November 20, 2020), 5.

⁷³ NATO, "NATO and the Non-Proliferation Treaty" (Public Diplomacy Division, March 2017), 1.

⁷⁴ "NATO 2010 Strategic Concept," 24.

⁷⁵ *Ibid.*, 14.

However, it is worth noting the policy continues the practice of delegating nuclear planning to NAC subcommittees, namely the NPG.⁷⁶ In other words, NATO leaves nuclear policy and planning up to civilians. The distinction is not a value judgment or a condemnation. Civilians planning for the use of nuclear weapons are quite different from the military. Civilians view nuclear weapons as a political tool, whereas the military views them as weapons. There is dialogue, and the military undoubtedly plays an advisory role. Nonetheless, the implication is clear, NATO views nuclear weapons as a tool for deterrence, not warfighting.

NATO and many member states, including the two nuclear powers of France and the UK, view nuclear weapons as a purely strategic asset. For instance, the UK dropped all mention of sub-strategic nuclear weapons in 2010.⁷⁷ Similarly, French policy speaks of nothing but strategic nuclear weapons even though some of their nuclear arsenal could be used in a tactical role.⁷⁸

The NATO Warsaw Summit in 2016 was the next update of NATO policy. Two key changes in tone are evident. NATO denounced Russia's destabilizing actions in the Ukraine and put a halt to nuclear disarmament. NATO is still very much committed to nuclear arms reduction but recognized the resurgence of Russia.⁷⁹ The NATO Brussels Summit in 2018 denounced a host of Russian actions, the most serious of which was the deployment of intermediate-range nuclear missiles (9M729 Iskander) to Kaliningrad in violation of the INF treaty.⁸⁰ The NATO

⁷⁶ NATO, *Deterrence and Defence Posture Review*, NATO, May 20, 2012, para. 12, accessed September 12, 2020, http://www.nato.int/cps/en/natohq/official_texts_87597.htm.

⁷⁷ Her Majesty's Government, "Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review" (The Stationery Office, 2010), 37.

⁷⁸ French Republic, "Defence And National Security Strategic Review" (Defence Information and Communication Delegation, 2017), 69-70.

⁷⁹ NATO, "Warsaw Summit Communiqué - Issued by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Warsaw," July 9, 2016, para. 59-65, accessed September 12, 2020, http://www.nato.int/cps/en/natohq/official_texts_133169.htm.

⁸⁰ NATO, "Brussels Summit Declaration Issued by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Brussels" NATO, July 12, 2018, para. 46, accessed September 12, 2020, http://www.nato.int/cps/en/natohq/official_texts_156624.htm.

London Summit in 2019 reiterated all that came before but did state, "Russia's aggressive actions constitute a threat to Euro-Atlantic security."⁸¹ However, these represented little more than strongly worded letters, fell short of naming Russia as an adversary, and had little impact on nuclear policy, let alone the use of low-yield battlefield nuclear weapons.

The future prediction embedded in NATO policy that nuclear weapons are solely for deterrence has a profound impact on the readiness of ground forces to operate in a battlefield nuclear environment. Indeed, this point, more than any other, explains the lack of ground force readiness. Without the ability to use LYBNW to achieve military objectives, NATO ground forces have little choice. How can they develop doctrine for LYBNW or maintain capabilities if they cannot use them? The predictable result is that NATO ground forces do not integrate nuclear capabilities into exercises in any meaningful way. Why would they if nuclear policy envisions either de-escalation or world-ending retaliation? Since a protracted war with nuclear weapons is out of the question, NATO ground forces do not train to operate on a nuclear battlefield. So, how well prepared are NATO ground forces to fight an adversary employing LYBNW? The answer is they are not.

The Future of NATO Policy

No one can predict the future, especially concerning policy about low-yield battlefield nuclear weapons. However, there are trends and associated probabilities that can help to anticipate the future.⁸² Unfortunately, most of the indicators point to further denuclearization and resistance to change. NATO has yet to publish a new strategic concept which was scheduled for 2020, and it is unclear when it will do so. Several fundamental obstacles stand in the way.

⁸¹ NATO, "London Declaration," 2019, para. 3, accessed September 12, 2020, https://www.nato.int/cps/en/natohq/official_texts_171584.htm.

⁸² Philip Tetlock and Dan Gardner, *Superforecasting: The Art and Science of Prediction* (New York, NY: Broadway Books, 2015), 278.

First, the alliance has doubled in size since the Cold War. All things being equal, the growth increases the difficulty of gaining consensus. However, all things are not equal and the increased diversity has produced emergent difficulties.⁸³ NATO consensus building was always uncertain but is now exponentially more so. Military alliances are predicated on specific circumstances, and NATO did well during the Cold War. However, military alliances do not last forever, especially when they have no enemy to unify the disparate parties.

The issue is simply a matter of competing interests. Alan Lamborn expanded Robert Putnam's two-level game theory by adding a third dimension, factional politics. His theory states there are three primary political arenas: domestic, international, and coalition.⁸⁴ Each state contends with internal political strife, impacting their international dealings and participation in alliances. All three form a reciprocal triangle of competing interests. In the case of NATO, there are thirty members spread across Europe and Asia. Each has its own culture, history, and world view that shape their goals.

Secondly, NATO is unlikely to officially recognize Russia as a threat because of geographic considerations. Within NATO, views on the Russian threat vary and are difficult to define. However, defense spending increases between 2013 and 2019 are a decent indicator.

⁸³ Jamshid Gharajedaghi, *Systems Thinking: Managing Chaos and Complexity: A Platform for Designing Business Architecture*, 3rd ed. (Burlington, MA: Morgan Kaufmann, 2011), 45.

⁸⁴ Lamborn, "Theory and the Politics in World Politics," 196.

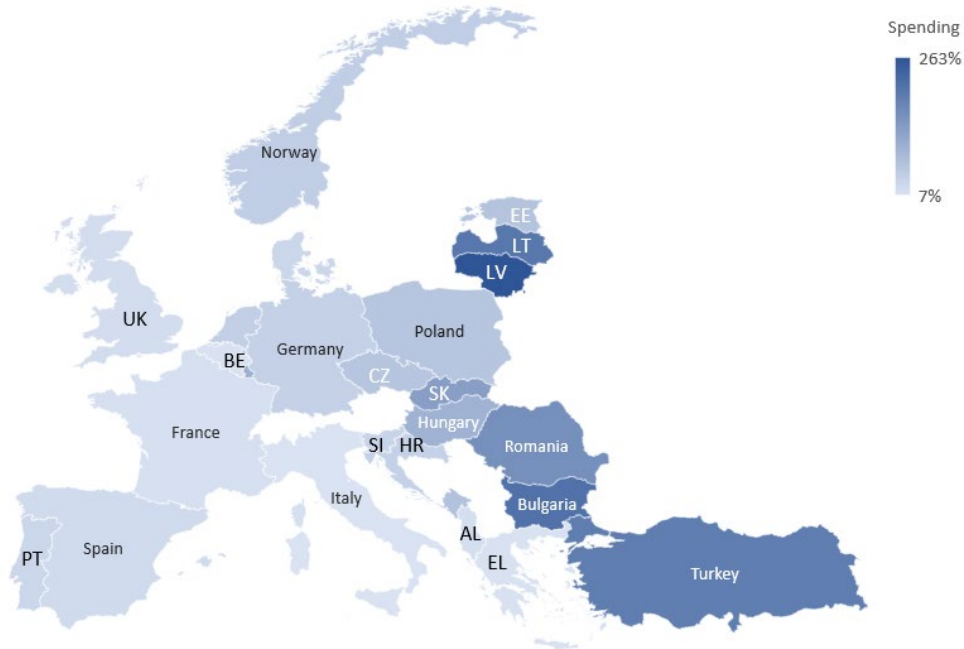


Figure 1. NATO Defense Spending by Country, 2013 to 2019. Created by the author.

Defense spending increased as follows for the countries bordering Russia: Estonia (62%), Latvia (200%), Lithuania (263%), and Poland (58%). In contrast, Italy (7%), France (13%), Spain (21%), and the UK (18%) are far lower. In fact, the proximity to Russia would seem to directly correlate to increased defense spending. Clearly, other factors contribute to the increase in each country. For instance, Turkey likely increased spending because of the Islamic State, Kurdish insurgency, and Syrian instability. However, the graphic is helpful in showing that the NATO states close to Russia perceive a threat. Conversely, the states further away from Russia do not seem to feel the same pressure.

Vladimir Putin understands NATO and the advantage of facing a divided alliance. He actively seeks to downplay the threat posed by Russia. He strikes at the core of the issue when he says, "NATO was built to counteract the Soviet Union in its day and time. At this point there is no threat coming from the Soviet Union, because there is no Soviet Union anymore. And where there was the Soviet Union once, there is now a number of countries, among them the new and

democratic Russia."⁸⁵ The statement deliberately adds ambiguity to any NATO discussion of the Russian threat. In essence, Russia will shrewdly undermine the alliance and work to prevent consensus.

The third, is a deeply rooted anti-nuclear movement in the United States and Europe. The anti-nuclear demonstration on 12 June 1982 remains the largest protest in US history. Approximately one million Americans marched in New York City's Central Park to advocate for nuclear disarmament.⁸⁶ While not as large, similar protests took place in Europe, especially Germany.⁸⁷ The current anti-nuclear movement has shifted focus to protest nuclear energy initiatives but is active whenever NATO conducts any nuclear armed training and consequently, NATO does not release the customary press release for these exercises. Talking about nuclear weapons is a "delicate balancing act among allies."⁸⁸ Even the debate on nuclear power is a very contentious issue, to say nothing of the environmental movement. Probably the most important implication is that politicians may see the need for nuclear weapons, but they are certainly not a winning issue.

A very compelling case can be made that the prohibition against using nuclear weapons has evolved into an international norm. In her work *The Nuclear Taboo*, Nina Tannenwald asserts the reason for non-use of nuclear weapons since 1945 has a lot to do with the stigma that surrounds them. "The decreasing legitimacy of nuclear weapons is not simply reflected in public opinion but has become institutionalized in an array of international agreements and regimes,

⁸⁵ Vladimir Putin, "Vladimir Putin Quotes," BrainyQuote, accessed October 8, 2020, https://www.brainyquote.com/quotes/vladimir_putin_601208.

⁸⁶ Megan Barber, "Here's Where the 8 Biggest Protests in U.S. History Took Place," accessed, January 19, 2017, para. 4, accessed September 12, 2020, <https://www.curbed.com/2017/1/19/14311548/marches-protests-locations-united-states-history>.

⁸⁷ John Tagliabue, "West Germans Protest Nuclear Missiles for 4th Day," *The New York Times*, 1983, para. 2, accessed September 12, 2020, <https://www.nytimes.com/1983/04/05/world/west-germans-protest-nuclear-missiles-for-4th-day.html>.

⁸⁸ "NATO Conducts Nuclear Military Exercise in Semi-Secrecy," Executive Intelligence Review, accessed September 12, 2020, https://iarouchepub.com/pr/2017/171018_nato_nuke_exercise.html.

both multilateral and bilateral, which together circumscribe the realm of legitimate nuclear use and restrict freedom of action with respect to nuclear weapons.”⁸⁹ Nowhere is this truer than in Europe and NATO. As noted previously, the alliance and all member states are signatories to the NPT and committed to a nuclear free world.

In summary, the diversity of perspectives, goals, and objectives across NATO will couch consensus. The alliance has been unable to agree that Russia is a direct threat, let alone an adversary that should be targeted. To make matters worse, the anti-nuclear movement and the overall stigma surrounding nuclear weapons makes low-yield battlefield nuclear weapons a losing proposition for politicians. The implications for the creation of NATO LYBNW doctrine and capabilities are clear: there is no impetus, motivation, or reason to develop LYBNW doctrine and capabilities. While the United States or states bordering Russia may disagree, the onus will be on them to drag the rest of the alliance along.

Current NATO Nuclear Doctrine

NATO first began publishing doctrine in the late 1990s by introducing Allied Joint Publications (AJP). The current AJP-3, *Operations* published in 2019 does not mention nuclear weapons except in a chemical, biological, radiological, and nuclear (CBRN) context.⁹⁰ Even AJP-3.8 *Comprehensive CBRN Defense* published in 2018 does not delineate nuclear weapons from other weapons of mass destruction.⁹¹ The complete lack of nuclear doctrine is indicative of the political policy and environment surrounding nuclear weapons in NATO.

NATO does not have a doctrine for using LYBNW, which is in stark contrast to the Cold War. However, it should be remembered that most NATO allies were not keen on using low-yield

⁸⁹ Nina Tannenwald, “The Nuclear Taboo: The United States and the Normative Basis of Nuclear Non-Use,” *The MIT Press* 53, no. 3 (1999): 436.

⁹⁰ NATO, Allied Joint Doctrine (AJP) 3, *Operations* (Brussels, Belgium: NATO Standardization Office, 2019), 1-15.

⁹¹ NATO, Allied Joint Doctrine (AJP) 3-8, *Comprehensive Chemical, Biological, Radiological, and Nuclear Defense* (Brussels, Belgium: NATO Standardization Office, 2018), A-2.

battlefield nuclear weapons during the Cold War and the United States was the primary advocate. Consequently, the United States also provided the majority of capabilities and doctrine. Today the US Army also lacks doctrine so NATO is truly left doctrine-less for the employment of LYBNW. The only hope NATO has for the development of nuclear doctrine is dependent on the United States. Even so, the United States can create doctrine for LYBNW, but it cannot force the alliance to adopt it.

Current NATO Nuclear Capabilities

Since the end of the Cold War, NATO has reduced the number of nuclear weapons in Europe by ninety five percent.⁹² Furthermore, France and the UK decommissioned all tactical and nonstrategic nuclear weapons. The United States is the only NATO member to employ LYBNW in Europe, and the dual-capable aircraft gravity bomb mission is the last vestige of the Cold War. The alliance deploys approximately 250 warheads spread across six member states.⁹³ The limited responsiveness, vulnerability, and predictability of these assets all but negate their utility. The true purpose is to maintain some nuclear capability in Europe, but it is a very contentious issue. The mission is largely symbolic, and hardly a credible deterrent. Furthermore, they are not meant for tactical use and not integrated into ground maneuver planning. In short, NATO has very limited LYBNW capabilities and these are not incorporated into ground force training events.

Current NATO Exercises

Current NATO exercises do not incorporate nuclear weapons with maneuvers and do not account for LYBNW at all. The reasons for this should be clear and are the direct result of NATO

⁹² NATO, "NATO and the Non-Proliferation Treaty," 1.

⁹³ Robertus Remkes, "The Security of NATO Nuclear Weapons Issues and Implications" (Nuclear Threat Initiative, November 2011), 66, accessed September 12, 2020, https://media.nti.org/pdfs/NTI_Framework_Chpt3.pdf.

policy. NATO exercise design and scenario models have improved in recent years yet compared to the Cold War, NATO is barely a shadow of its former self.

NATO is scheduled to conduct twenty-four large exercises in 2021 throughout Europe. The training objectives include: interoperability, contingency response, maritime integration, command and control, cyber activities, and tests of the very high readiness joint task force.⁹⁴ Conspicuously absent is any mention of nuclear exercises or incorporation of nuclear capabilities into training events. Again, based on the political environment and current policy this should come as no surprise.

Even after Russian aggression in the Ukraine during 2014, when the alliance was somewhat more cohesive, no effort was placed on nuclear weapons. Trident Juncture was a series of large exercises executed between 2015 and 2018 that focused on the readiness of the newly created NATO response force.⁹⁵ NATO focused on its conventional forces to deter Russia, particularly in the Baltics.

In 2019 NATO switched to Trident Jupiter, intending to incorporate space capabilities into NATO formations. The training event included hundreds of space-related injects and forced NATO forces to consider the space domain in planning.⁹⁶ Again, this focus has little to do with LYBNW. However, of note was the use of a new training scenario known as OCCASUS. The scenario is a step in the right direction because it is geographically overlaid on Europe and operates against a fictitious adversary emanating from Russian territory. Another salient point is

⁹⁴ NATO, "NATO Exercises," SHAPE, 2020, para. 1, accessed September 25, 2020, <https://shape.nato.int/nato-exercises.aspx>.

⁹⁵ Megan Friedl, "U.S. Joins NATO's Trident Juncture Exercise," US Department of Defense, October 18, 2018, para 3, accessed September 12, 2020, <https://www.defense.gov/Explore/News/Article/Article/1666272/us-joins-natos-trident-juncture-exercise/>.

⁹⁶ Robert Kroeger and Flavio Giudice, "Trident Jupiter 2019 Integrating Space Into NATO Joint Exercises," *The Three Swords Magazine*, 2019, 95.

that the new scenario gives the adversary limited nuclear capabilities.⁹⁷ The new orientation and addition of adversarial nuclear capabilities may seem like a slight improvement. However, NATO forces will more readily recognize the threat posed by Russia and can begin to plan against a nuclear-armed opponent. Compared to the previous exercise scenarios, the new model is a significant step.

To say NATO does not conduct nuclear exercises would be false, however, they are shrouded in secrecy and nearly all details are classified. What is clear is that these capabilities are not viewed as military assets. As such, they are not incorporated into large NATO exercises but are conducted separately. As noted earlier, these exercises are not announced publicly, and it seems odd to hide deterrence missions. The point highlights the challenge in NATO concerning nuclear weapons. NATO wants Russia to know they are exercising their deterrence capabilities and that they remain credible. However, NATO does not want their citizens to know about it because it will elicit protests and unwanted attention.

United Kingdom Nuclear Policy

The United Kingdom is the only member state besides the United States to extend nuclear deterrence to NATO. They are a key player and one of only three nuclear armed member states. The 2015 Strategic Defense and Security Review affirms the UK is committed to maintaining their nuclear deterrent for as long as the security environment warrants. The document also characterizes their nuclear program using three words: minimum, credible, and independent.⁹⁸ A brief overview of the UK's policy and capabilities will show that even the staunchest among the alliance may be of little value in re-introducing low-yield battlefield nuclear weapons.

⁹⁷ Michael Derksen, "360° Scope Scenario Design and Development in JWC - NATO," The Joint Warfare Centre, para. 5, accessed October 7, 2020, <https://www.jwc.nato.int/newsroom/warfare-development-focus/360-scope-scenario-design-and-development-jwc>.

⁹⁸ Her Majesty's Government, *Strategic Defence and Security Review*, 34.

Minimum certainly characterizes the recent nuclear posture of the UK. The deployed arsenal is the smallest of all nuclear states and they are committed to continued reduction in their arsenal.⁹⁹ Similarly, the UK retains only one platform in the form of four Vanguard-class Ballistic Missile Submarines to conduct nuclear strikes and they have no tactical nuclear weapons.¹⁰⁰

There is a clear tension between credibility and maintaining the minimum force necessary to achieve it. Like NATO the UK does not officially recognize an adversary and they do not target any state.¹⁰¹ Without a named adversary the balance is tilted in favor of the bare minimum. If deterrence is in the mind of the enemy and none officially exists, how can the military advocate for more capability to deter a nonexistent threat. The lack of footing is exacerbated by the recent cost overruns in several nuclear programs to the tune of 1.35 billion pounds.¹⁰² Similarly, the unexpected costs of the Coronavirus pandemic are also a concern and could amount to huge sums both in terms of spending and lost tax revenue. A recent BBC article placed just the spending cost at around 190 billion pounds.¹⁰³ While budget constraints are not likely to threaten the existence of the UK's nuclear deterrent, the ability to modernize and expand capabilities will be greatly hindered. Thus, the UK's nuclear policy will tend more towards the minimum than maintaining a credible deterrence.

⁹⁹ Arms Control Association, "Arms Control and Proliferation Profile: The United Kingdom," Arms Control.org, para. 3, accessed October 8, 2020, <https://www.armscontrol.org/factsheets/ukprofile>.

¹⁰⁰ Royal Navy, "Vanguard Class," Ministry of Defence, para. 3, accessed October 8, 2020, <https://www.royalnavy.mod.uk/the-equipment/submarines/ballistic-submarines/vanguard-class>.

¹⁰¹ Her Majesty's Government, "Strategic Defence and Security Review," 36.

¹⁰² Andrew Chuter, "Three British Nuclear Programs Are \$1.67 Billion over Budget," *Defense News*, May 12, 2020, para. 2, accessed September 12, 2020, <https://www.defensenews.com/global/europe/2020/05/12/three-british-nuclear-programs-are-167-billion-over-budget/>.

¹⁰³ David Dharshini, "Coronavirus: Public Spending on Crisis Soars to £190bn," *BBC News*, July 9, 2020, para. 1, accessed September 12, 2020, <https://www.bbc.com/news/business-53342271>.

The UK's desire to maintain an independent nuclear deterrent is admirable but is heavily reliant on the United States. The special relationship between the two has many facets but one of the core areas is nuclear collaboration. The relationship goes all the way back to the Manhattan Project but was solidified with the 1958 Mutual Defense Agreement and the 1963 Polaris Sales Agreement.¹⁰⁴ These agreements essentially gave the UK unprecedented access to the US nuclear program and there is significant collaboration to this day. The UK utilizes US ballistic missiles and receives support for its own warhead development.¹⁰⁵ The special relationship will continue to grow especially in light of future budgetary constraints. Thus, the UK nuclear deterrent can hardly be seen as independent as it continues to rely on US support.

The UK's nuclear policy is a mirror image of NATO's and the implications are just as clear. The UK has no policy or doctrine for the use of LYBNW. They have no LYBNW capabilities, no declared adversary, and their ground forces could hardly be expected to train for a nuclear battlefield. Even the UK's strategic nuclear deterrence is of dubious value. The policy leans towards the minimum and is neither credible nor independent.

Conclusion

During the Cold War NATO had a clearly defined threat and policy for the use of LYBNW. The policy evolved but rarely were all member states happy with the results. However, the monolithic threat of the Soviet Union provided the glue that held the alliance together, and the grease that facilitated agreement on policy. While not universally liked, the policy enabled the alliance to develop strategy and doctrine for the use of LYBNW. It also allowed for the creation of LYBNW capabilities and integration of these into large NATO exercises. The United States

¹⁰⁴ Nick Ritchie, *A Nuclear Weapons-Free World: Britain, Trident and the Challenges Ahead* (New York, NY: Palgrave Macmillan, 2012), 92.

¹⁰⁵ Nick Ritchie, "Nuclear Warhead Activities at AWE Aldermaston," (London, UK: Nuclear Information Service, July 2009), accessed September 12, 2020. <https://www.nuclearinfo.org/wp-content/uploads/2020/09/Nuclear-Warhead-Activities-at-AWE-Aldermaston.pdf>.

took a leading role and was almost entirely responsible for the integration of LYBNW. Consequently, NATO ground forces were prepared to fight an adversary employing LYBNW during the Cold War. Today the situation could hardly be more different. NATO has neither a named adversary nor a policy for the use of LYBNW. Nuclear policy has been handed over to civilians and politicians who view them as a tool for deterrence instead of warfighting. As a result, NATO ground forces have no doctrine, limited LYBNW capabilities, and do not integrate nuclear weapons into large scale exercises. Neither does the United States integrate LYBNW into exercises, and its influence has decreased significantly since the Cold War. Thus, NATO is not prepared to fight an adversary employing LYBNW. To make matters worse, the alliance is twice the size it was during the Cold War and consensus building is that much harder. Views on nuclear weapons have also changed and many states in Europe are committed to a nuclear free world. Russia is a shrewd actor and will continue to obstruct consensus building within the alliance. The result is that NATO policy will likely not change towards the use of LYBNW.

As long as nuclear weapons are a tool of policymakers and viewed as strategic weapons, there is little hope of employing them in an operational role. The implication of this is simple; the political alliance of NATO is not the answer or vehicle for change. In fact, NATO may be one of the largest hindrances to change in this area. The odds of the United States convincing NATO to integrate LYBNW into ground maneuvers without a clearly defined threat, borders on the impossible. The only recourse is for the United States to resume its historic leadership role in the alliance, particularly where it pertains to LYBNW. Admittedly, the United States can bring the horse to water, but it cannot make it drink.

Finally, the US military can no longer ignore LYBNW. A return to the Cold War is not the right solution because the context is significantly different. Indeed, the pentomic era is a perfect example of the extremes to which the military can go. However, the almost utter disregard for all things nuclear in US Army doctrine and training today is unrealistic. All major adversaries

of the United States either possess nuclear weapons or are actively seeking them. The operational environment demands the US Army reassess the role of LYBNW now before it is too late.

General J.F.C. Fuller captures the necessity of timely innovation,

Plasticity of mind cannot be cultivated during a war except by an occasional genius. The generality of soldiers simply cannot change if they are dogma-ridden. The only way to prevent their ossification of mind is to accept nothing as fixed, to realize that the circumstances of war are everchanging and that consequently, organization, administration, strategy, and tactics must change also, and if during peace time we cannot change them in fact, we can nevertheless change them in theory, and so be mentally prepared when circumstances require that changes be made. Adherence to dogmas has destroyed more armies and lost more battles and lives than any other cause in war.¹⁰⁶

Section III - Recommendations

Recommendation One

The first action for shaping both the United States and NATO policy debate is to place nuclear weapons in the context of defense, not just deterrence. During the Cold War, the whole point of LYBNW was to counter an overwhelming Soviet threat, with the added benefit of enhancing deterrence. The nuclear deterrent was seen to be credible because it was exercised and incorporated into operational planning. Today, NATO espouses an approach similar to the old massive retaliation policy, which is not useful in defense planning and leaves much to be desired for deterrence. In essence, the alliance will only use nuclear weapons to end a war, but this all-or-nothing approach creates a grey space for Russia to exploit. The fear surrounding Russian meddling in the Baltics is a prime example, and the rotational forces stationed there are meant to raise the stakes. NATO placed forces in the Baltics to account for the grey space of massive retaliation by escalating effects of Russian actions. In short, NATO's reliance on massive retaliation and lack of low-yield battlefield nuclear weapons in actual defense planning is insufficient to deter Russian aggression. The alliance must envision a future war where nuclear weapons are used to achieve military objectives.

¹⁰⁶ Mataxis and Goldberg, *Nuclear Tactics*, 9.

Recommendation Two

The second step is to refrain from separating "conventional war" from "nuclear war." There is only war, with varying degrees of intensity. It may seem like a slight nuance but separating nuclear weapons into its own class of war elevates it. The separation has grown over the years to the point United States and NATO ground forces hardly even acknowledge the possibility. The use of nuclear weapons changes the character of war and complicates matters to the point where they would rather not think about it, thus giving nuclear weapons a hallowed position and elevating them to the policy realm, absolving the US Army of responsibility. However, what if our adversaries use these weapons as they have so often threatened?

Recommendation Three

The third change is to demystify nuclear weapons. Our imagination combines mushroom clouds with the horrific images of Hiroshima, and we imagine desolation. Our mind then jumps to MAD and the annihilation of the world. While certainly possible, ignorance of nuclear weapons, particularly LYBNW, facilitates extreme thinking. One of the reasons the pentomic era occurred was because it is theoretically possible to fight a war with nuclear weapons. Simply wishing away the possibility, however slight it may be, is not a responsible solution.

Soldiers must be trained and educated to fight on a nuclear battlefield. The effects of a nuclear blast are significant but easily negated by terrain or well-constructed fighting positions. The effects of thermal radiation only last for a short time, and protection is not difficult. The effects of residual radiation are of more concern and are governed by numerous factors like altitude, size, reaction efficiency, and terrain. However, radiation levels are easily tested, and protective gear can facilitate operations. Also, the argument that the area will be uninhabitable for

many years is usually false or at least taken to an uneducated extreme. Hiroshima and Nagasaki were rebuilt only a few years after the attacks and are thriving cities today.¹⁰⁷

Recommendation Four

The fourth action is to truly integrate LYBNW into training events and not just notionally acknowledge them. Protection and survivability are necessary but can hardly be sufficient to win a war where nuclear weapons are used. US forces must be able to use LYBNW to achieve objectives where necessary. Again, this monograph is not advocating a return to the pentomic era or an arms race that seeks to match Russian capabilities. The point is, US forces will not use a weapon they do not understand or have not trained to use. How can they compete effectively against an adversary that is trained and has thought through the implications of using LYBNW? They cannot, and failing to prepare will undoubtedly cede the initiative to the enemy.

One good way to ensure US ground forces integrate low-yield battlefield nuclear weapons into training events is to give them some capability. Without the ability to train using actual nuclear weapons, they will remain ethereal and notional. This is not to say integrating Air Force assets is a waste. However, an in-house capability will serve as a forcing function. In short, if US ground forces have LYBNW, they will be forced to think through the implications and integrate them into maneuvers.

Recommendation Five

The US Army must argue that LYBNW enhance deterrence and make the perceived threat more credible. This strategy is the only way to wrest some control of LYBNW and inform the policy debate. A balanced view must prevail; nuclear weapons are for both deterrence and warfighting. A low-yield battlefield capability in the hands of ground forces provides flexibility and options in the event of a confrontation. NATO touts an ambiguous nuclear deterrent but in

¹⁰⁷ Steve Powell, "How Hiroshima Rose from the Ashes.," *BBC*, 2017, para. 5, accessed September 12, 2020, <http://www.bbc.com/travel/story/20171112-how-hiroshima-rose-from-the-ashes>

the same breath defines when they will be used. Similarly, the alliance is very transparent about its capabilities, and they are all more or less of a second-strike nature. If NATO will only use strategic nuclear weapons in extreme cases using a second-strike capability, how ambiguous is the policy? Diversifying NATO's nuclear arsenal will present more dilemmas to the enemy, allow more options for NATO, and insure the policy is ambiguous. The cumulative result is a more credible deterrence effect. In short, the Roman adage of "If you want peace, prepare for war." is no less true then than it is now regarding LYBNW.¹⁰⁸ Again, just having nuclear weapons is insufficient to deter a determined adversary. As we have seen during the Cold War, it took all four elements of preparedness to integrate LYBNW and ensure NATO deterrence was credible.

In the end, the only hope NATO ground forces have of being prepared to fight an adversary employing LYBNW is the US Army. Cold War preparedness was a direct result of US leadership, doctrine, capabilities, and training. The threat posed by the Soviet Union provided the impetus to adopt or at least tolerate US nuclear policy. Neither force exists today, and the alliance is far more complex. The probability of NATO adopting LYBNW is fanciful, even with US leadership. However, without it, the odds are impossible. The United States should work towards establishing a balanced approach to LYBNW and place them in the context of defense planning. The US Army must demystify nuclear weapons through education, training, and truly incorporate them into operations. While NATO may not follow the US model, it nevertheless represents NATO's last hope to fight an adversary employing LYBNW.

¹⁰⁸ "Definition of SI VIS PACEM, PARA BELLUM," Merriam Webster, accessed February 15, 2021, <https://www.merriam-webster.com/dictionary/si+vis+pacem%2C+para+bellum>.

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